

## User Guide

### OVERVIEW

The Building Emissions Calculator expands on Portfolio Manager's greenhouse gas (GHG) emissions capabilities by:

- Allowing users to create location-based and market-based GHG emissions estimates;
- Applying historic emissions factors to prior years' energy consumption; and
- Forecasting of emissions based on a set of user-defined assumptions.

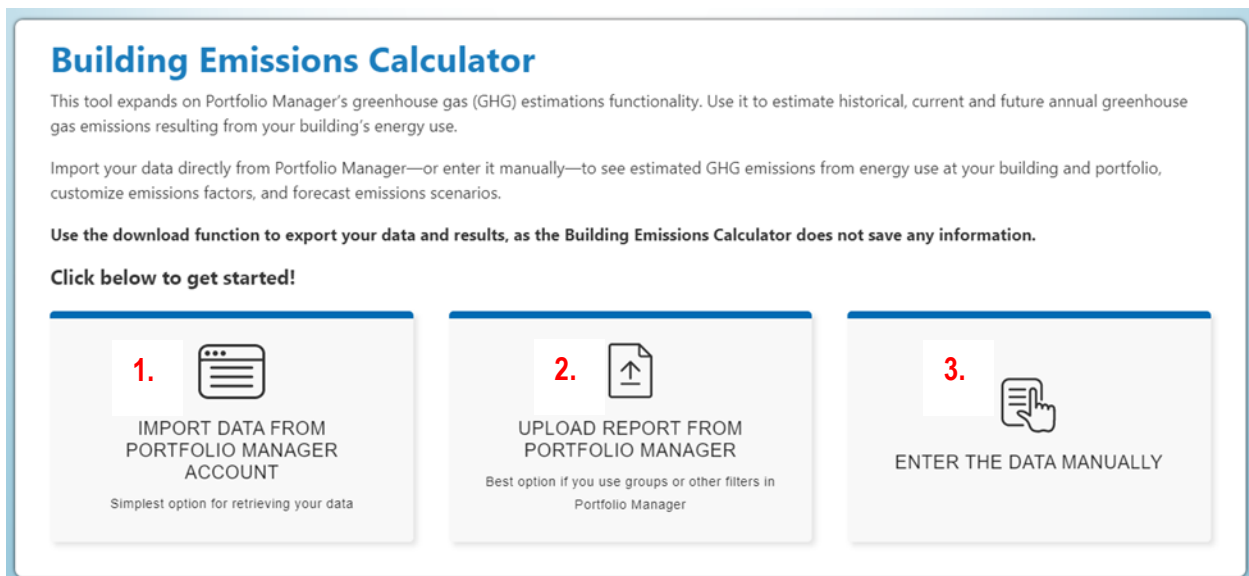
This guide walks you through the process of getting data into the Building Emissions Calculator (including direct import from Portfolio Manager) and using its features.

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### GETTING DATA INTO THE BUILDING EMISSIONS CALCULATOR

There are multiple pathways for importing building and energy data into the Building Emissions Calculator (hereafter referred to as the Calculator). As shown below (Figure 1), Options 1 and 2 allow you to import data directly from Portfolio Manager. Option 3 provides a “manual” pathway for users whose data is not in Portfolio Manager.



*Figure 1 - Building Emissions Calculator home page*

#### Import Data Directly from Your Portfolio Manager Account (Option 1)

1. On the home page, click “Import Data from Portfolio Manager Account.” A box will pop up (Figure 2).

The screenshot shows a modal window titled 'Pull Portfolio Manager data from my account'. It contains the following elements:

- A close button (X) in the top right corner.
- Instructions: 'Clicking Submit retrieves data from Portfolio Manager. Changes made in the Building Emissions Calculator do not affect any data in your Portfolio Manager account'.
- A 'Username' label followed by an input field containing the placeholder text 'Input Username'.
- A 'Password' label followed by an input field containing the placeholder text 'Input Password'.
- A blue 'Submit' button at the bottom left.

*Figure 2 - Import data directly from your Portfolio Manager account*

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2. Enter the Username and Password for your Portfolio Manager account. Click “Submit” to retrieve the data from your account. No actions taken from this point forward will affect any data in your Portfolio Manager account.
3. The next screen will display the Building Name and Property ID for all properties in your Portfolio Manager account (Figure 3). Select up to 50 buildings located in the U.S. for import. Click “Get Building Dates” to proceed.
  - If your Portfolio Manager account includes any properties with “Parent/Child” relationships, the Parent and Child properties will display in the Calculator as separate buildings, and Child properties may not be listed immediately after their Parent property.

< Start Over

**Please select up to 50 US buildings**

Account ID: 279289

Search

If the Portfolio Manager account includes Parent/Child properties, they are displayed separately below.

<input type="checkbox"/>	Building Name	Portfolio Manager Building ID
<input type="checkbox"/>	Yet Another Sample K-12 School (US)	18094247
<input type="checkbox"/>	Sample Library (US)	18661061
<input type="checkbox"/>	Sample Office (US)	18661062
<input type="checkbox"/>	Sample K-12 School (US)	18661063
<input type="checkbox"/>	Sample University (including one child building) (US)	18661064
<input type="checkbox"/>	Sample Engineering Laboratory (US)	18661065

Get Building Dates

Figure 3 - Select up to 50 buildings for import

4. On the next screen, select one calendar month and one or more years to determine which 12-month period(s) of energy data will be imported from Portfolio Manager for the selected buildings (Figure 4).

< Start Over

**Please select the years to display**

Select a period ending date (one month) and one or more years for buildings checked below. Results will display where 12 months of data, ending on the selected month, are available in Portfolio Manager.

Select Month: December

Select Year(s): 2016, 2017, 2018, 2019

Account ID: 279289

< Back To Building Selection

Submit Data

<input checked="" type="checkbox"/>	Building Name	Portfolio Manager Baseline Period Ending Date	Portfolio Manager Current Period Ending Date
<input checked="" type="checkbox"/>	Sample Library (US)	12/31/2017	12/31/2019
<input checked="" type="checkbox"/>	Sample Office (US)	12/31/2017	12/31/2019
<input checked="" type="checkbox"/>	Sample University (including one child building) (US)	12/31/2014	03/31/2017
<input checked="" type="checkbox"/>	Sample K-12 School (US)	12/31/2017	12/31/2019
<input checked="" type="checkbox"/>	Yet Another Sample K-12 School (US)	12/31/2017	12/31/2019

Figure 4 - Select month/year period ending dates for each building

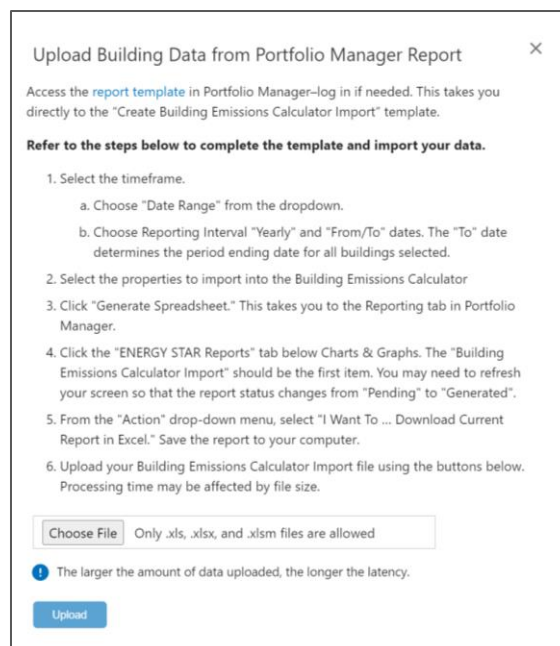
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- The dates shown in the columns labeled “Portfolio Manager Baseline Period Ending Date” and “Portfolio Manager Current Period Ending Date” are intended as guides for choosing the annual time periods for which data are available in Portfolio Manager.
  - The month you choose will determine the annual period ending date. For instance, if you choose the month of “December” and the years 2018, 2019, and 2020, the tool will import three years of energy use for each selected building – for the annual period ending December 2018, the annual period ending December 2019, and the annual period ending December 2020.
  - If you accidentally selected a building on the prior screen, you can un-check it on this screen.
  - If you discover that you need to add one or more building(s) to the list of records being imported into the Calculator, you can click “Back to Building Selection” to return to Step 3.
5. Click “Submit Data” to import the data from Portfolio Manager.
- If you select one or more annual time period(s) for which Portfolio Manager cannot calculate metrics, the data for that combination of building/month/year will not be imported into the Calculator.

### Upload a Report That You Generated in Portfolio Manager (Option 2)

This option may be preferable if you have a large number of buildings in your Portfolio Manager account and/or have organized your buildings into groups.

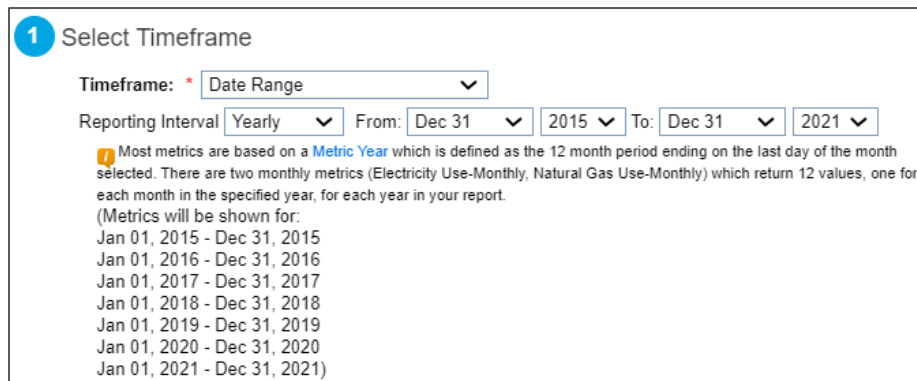
1. On the Calculator home page, click “Upload Report from Portfolio Manager.” A box will pop up with further instructions (Figure 5).



**Figure 5 - Upload a report that you generated in Portfolio Manager**

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2. Click [here](#) to directly access the report template via your Portfolio Manager account. If you are not already signed into Portfolio Manager, you will need to do so.
3. From the “Create Building Emissions Calculator Import” page in Portfolio Manager, perform the following steps:
  - Select the timeframe(s) for which you wish to import data
    - Timeframe: Date Range
    - Reporting Interval: Yearly
    - Make sure the same month is selected for “From” and “To” dates (Figure 6 shows a selection that would result in building data being returned for the each of the 7 calendar years covering 2015 – 2021).



**1 Select Timeframe**

Timeframe: \*

Reporting Interval  From:   To:

**i** Most metrics are based on a [Metric Year](#) which is defined as the 12 month period ending on the last day of the month selected. There are two monthly metrics (Electricity Use-Monthly, Natural Gas Use-Monthly) which return 12 values, one for each month in the specified year, for each year in your report.

(Metrics will be shown for:

- Jan 01, 2015 - Dec 31, 2015
- Jan 01, 2016 - Dec 31, 2016
- Jan 01, 2017 - Dec 31, 2017
- Jan 01, 2018 - Dec 31, 2018
- Jan 01, 2019 - Dec 31, 2019
- Jan 01, 2020 - Dec 31, 2020
- Jan 01, 2021 - Dec 31, 2021)

**Figure 6 - Example of timeframe selection for the “Building Emissions Calculator Import” report template**

- Select the property(ies) for which you wish to import data.
  - Click “Generate Spreadsheet,” which will take you back to the “ENERGY STAR Reports” section of the Reporting tab.
  - Locate the report named “Building Emissions Calculator Import.” You may need to refresh your screen so that the report status changes from “Pending” to “Generated.”
  - From the “Action” drop-down menu, select “I Want To ... Download Current Report in Excel.” Save the report to your computer.
4. Return to the Calculator home page and click the “Upload Building Data from Portfolio Manager Report” icon again. Use the “Choose File” button to select the Portfolio Manager report that you downloaded to your computer, then click “Upload.” Processing time may be affected by file size.

If you need further guidance on generating Portfolio Manager reports, please see the following resources:

- [How to Generate Standard Reports and Performance Documents in Portfolio Manager](#) (PDF guide)
- [How to Generate Standard Reports in Portfolio Manager](#) (YouTube video)

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### Enter Your Data Manually (Option 3)

For buildings that have not yet been benchmarked in Portfolio Manager, you can use this third option to enter your data manually.

1. Click on “Enter the Data Manually.” A box will pop up with further instructions (Figure 7).

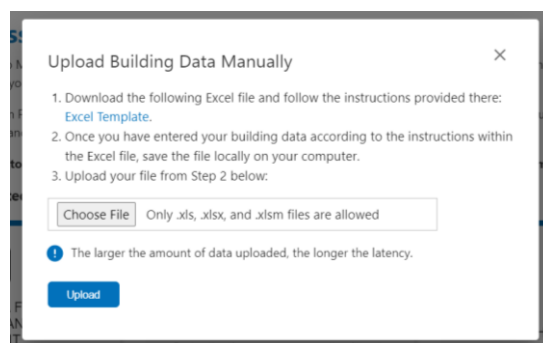


Figure 7 - Enter your data manually

2. Click on the linked, macro-enabled spreadsheet file (.xism) to download to your computer. Open the file. If necessary, enable/allow macros to run in your Excel application.
3. Enter all required data on the “Manual Import” tab (Figure 8).

Building Name	<input type="text"/>	Done With This Entry
Building Gross Floor Area (ft²)	<input type="text"/>	Entries added
12-month period ending date	<input type="text"/>	
ZIP Code	<input type="text"/>	
eGRID Subregion	<input type="text"/>	Auto-populates based on ZIP

\*\*\* We recommend using the same month for the period ending date of each building you enter in this session. \*\*\*

Enter total annual values for all fuels used in the operation of your buildings. Select the correct units for each fuel via the drop-down list. You can review your data entries on the Spreadsheet Upload tab.

Fuel Type	Unit	Total Annual (12-Month) Consumption
Electricity (Grid Purchase)	kWh	
Offsite Green Power	kWh	
Electricity (Generated Onsite, Used Onsite, RECs Owned)	kWh	
Electricity (Generated Onsite, Used Onsite, RECs NOT Owned)	kWh	
Natural Gas	therms	
District Steam	MBtu	
District Hot Water	Therms	
District Chilled Water	Ton Hours	
Fuel Oil (No. 1)	Gallons (US)	
Fuel Oil (No. 2)	Gallons (US)	
Fuel Oil (No. 4)	Gallons (US)	
Fuel Oil (No. 5 and No. 6)	Gallons (US)	
Diesel	Gallons (US)	
Propane	Gallons (US)	
Kerosene	Gallons (US)	
Coal (anthracite)	Tons	
Coal (bituminous)	Tons	
Coke	Tons	
Wood	Tons	
Other	kBtu	

Figure 8 - Manual import data entry spreadsheet

- Enter the date in MM/DD/YYYY format.
- The eGRID region for your building should populate automatically based on ZIP code.
- For each fuel type, different units can be selected to match what you see on your energy bills. Please note: the prefix “k” means “thousand” and “M” means “million.” If your utility bill uses the prefix “M” to mean “thousand” and “MM” to mean “million,” you must adjust accordingly when selecting your units.

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- For each fuel type, enter the total annual consumption (in the selected units) for the 12-month period that you have indicated above.
4. Once you have entered consumption for all fuel types used at your building, click “Done With This Entry.” This will “lock in” the building data that you just entered and will clear the input fields so that you can enter another building, if necessary. The “Entries added” counter below the button will update to reflect the total number of building/year records that have been placed into queue for import into the Calculator.
- If you only have one building you wish to include, click “Done With This Entry,” save the file to your computer, and close the spreadsheet.
  - To include additional buildings, click “Done With This Entry” after each one (including the last building you enter). Then save the file to your computer and close the spreadsheet.
  - On the “Spreadsheet Upload” tab, you will be able to see the data that will be imported into the Calculator. Note that this tab is read-only, and at this time it is not possible to edit a record after you have clicked “Done With This Entry” on the “Manual Input” tab. For each building entered manually, we recommend that you review the data in the relevant line of the “Spreadsheet Upload” tab and confirm that there are no errors or missing data before clicking “Done With This Entry.”
5. Navigate back to the Calculator main page and click “Enter the Data Manually.” Use the “Choose File” button to select the manual data entry spreadsheet that you just completed and saved to your computer, then click “Upload.”

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### REVIEWING YOUR METRICS

Once you have imported data into the Calculator, you will see your GHG emission metrics in a graph and a table (Figure 9).

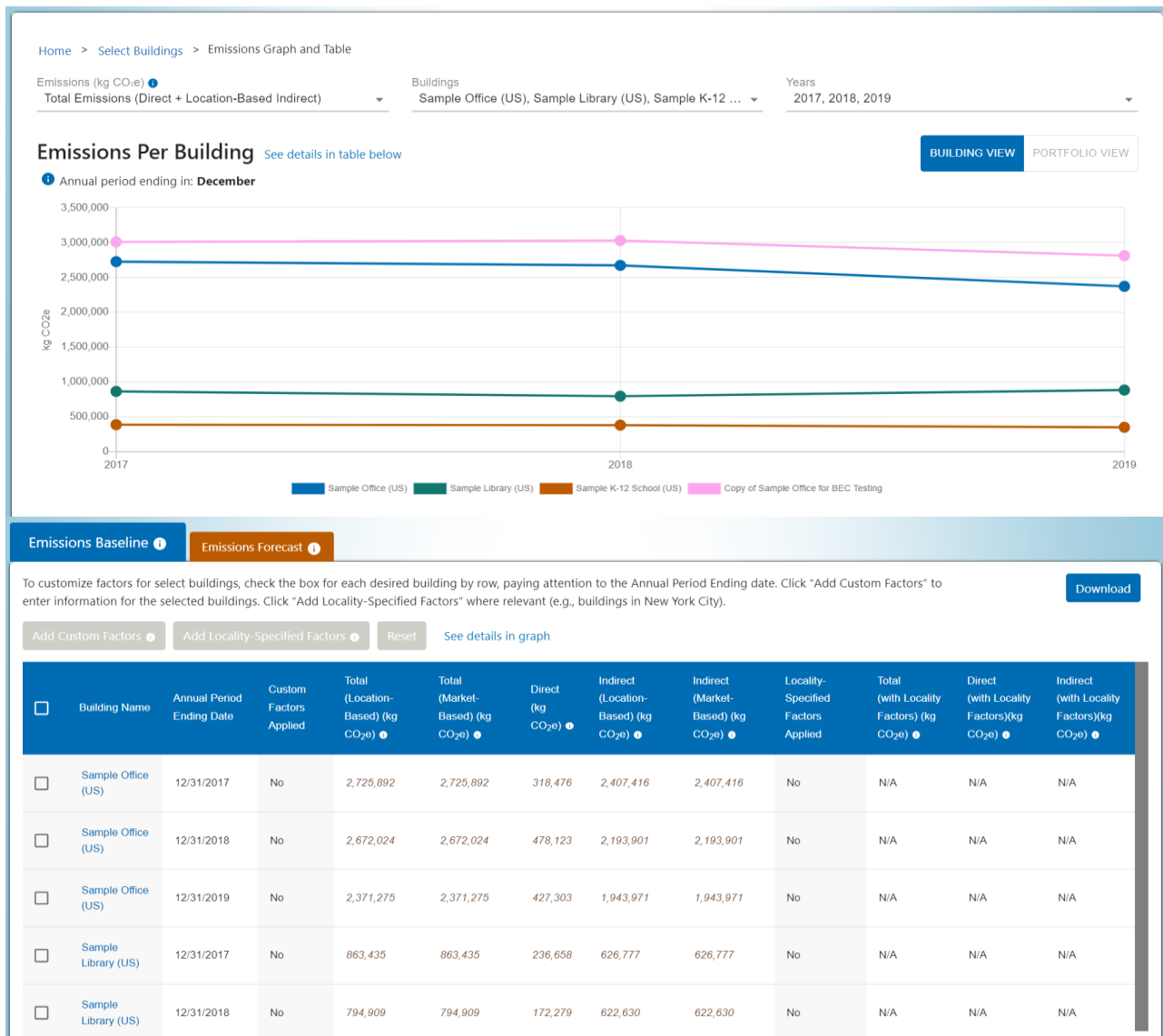


Figure 9 - Building Emissions Calculator main interface (Graph and Data Table views)



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### Using the Graphing Module

There are two types of graphs available.

- The default graph layout, “Building View,” is a time-series stacked-line graph. Each line represents the GHG emissions for a single building and each point on the line represents a year of that building’s calculated GHG emissions (Figure 10).

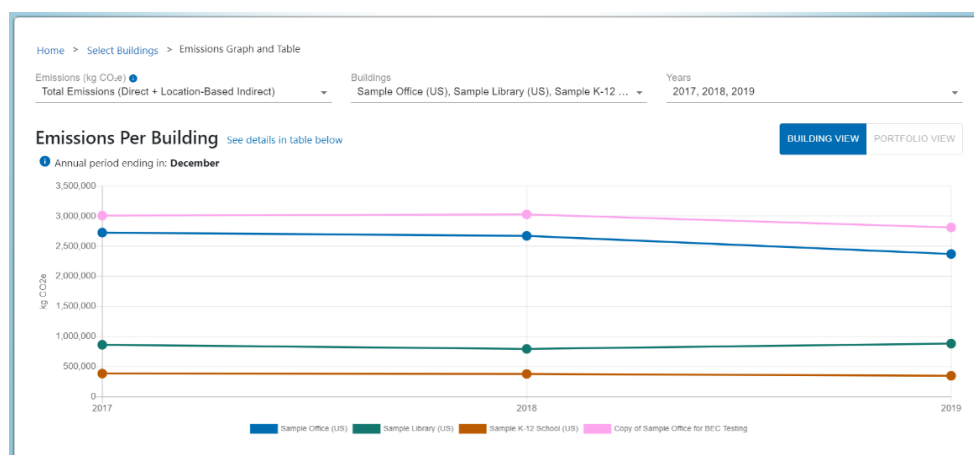


Figure 10 - Graphing module (Building View)

- The “Portfolio View” shows a time-series bar graph of emissions (Figure 11). Each bar represents the total emissions for a given calendar year for all buildings that have been imported.

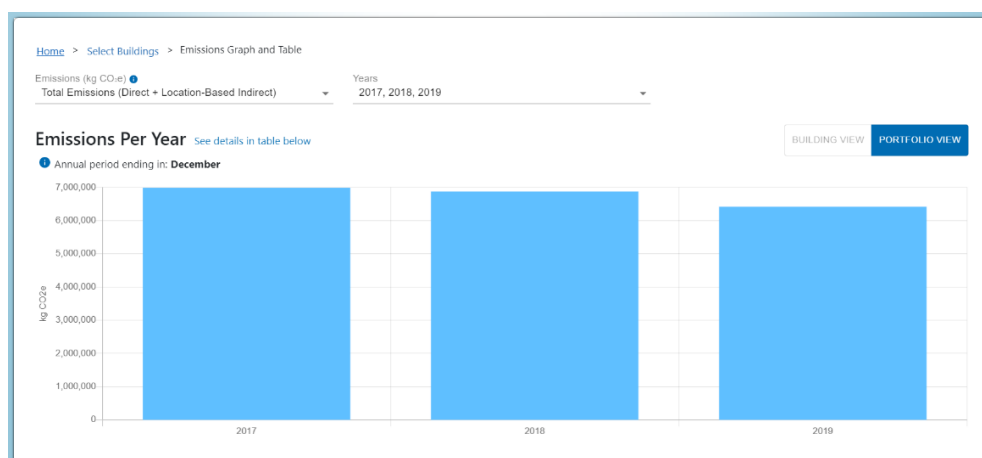
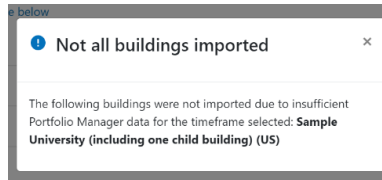


Figure 11 - Graphing module (Portfolio View)

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- Buildings for which Portfolio Manager cannot generate metrics for any of the selected time periods will be omitted from the graph and data table entirely. Where applicable, this will be communicated to the user in a dialogue box immediately following the import of data into the Calculator (Figure 12).



*Figure 12 - Dialogue box indicating that not all selected properties were imported*

- If you have buildings for which Portfolio Manager can only generate metrics for some (but not all) of the month/year periods selected for import, the Calculator will only display data for the periods in which metrics could be calculated.
- For either view, you will be able to use the drop-down menu above the graph to select the specific emissions metric to display.
- Use the drop-down menus above the graph to select and de-select the building(s) and/or year(s) that display on the graph at one time.
- Hover your mouse over the points on the line graph (in the “Building View”) or the bars (in the “Portfolio View”) to see the respective values for the emissions type selected.
- The graph updates in real time when any changes are made to the data (e.g., when custom factors or locality-specific factors are applied to one or more building/year record, or when forecast assumptions are applied, as discussed below).

### Understanding the “Emissions Baseline” Data Table

The data table (Figure 13) is separated into 2 tabs: “Emissions Baseline” (default view) and “Emissions Forecast.” The “Emissions Baseline” tab contains the calculated metrics for the buildings/years you entered into the Calculator. It is also where you can make changes to emissions factors for these buildings/years.

Each building/year record is displayed in a separate row. So, a single building with 3 years of data imported into the Calculator will display as 3 separate rows, each with a different “Annual Period Ending Date.”

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**Emissions Baseline** **Emissions Forecast**

To customize factors for select buildings, check the box for each desired building by row, paying attention to the Annual Period Ending date. Click "Add Custom Factors" to enter information for the selected buildings. Click "Add Locality-Specified Factors" where relevant (e.g., buildings in New York City). [Download](#)

[Add Custom Factors](#) [Add Locality-Specified Factors](#) [Reset](#) [See details in graph](#)

<input type="checkbox"/>	Building Name	Annual Period Ending Date	Custom Factors Applied	Total (Location-Based) (kg CO <sub>2</sub> e)	Total (Market-Based) (kg CO <sub>2</sub> e)	Direct (kg CO <sub>2</sub> e)	Indirect (Location-Based) (kg CO <sub>2</sub> e)	Indirect (Market-Based) (kg CO <sub>2</sub> e)	Locality-Specified Factors Applied	Total (with Locality Factors) (kg CO <sub>2</sub> e)	Direct (with Locality Factors) (kg CO <sub>2</sub> e)	Indirect (with Locality Factors) (kg CO <sub>2</sub> e)
<input type="checkbox"/>	Sample Office (US)	12/31/2017	No	2,725,892	2,725,892	318,476	2,407,416	2,407,416	No	N/A	N/A	N/A
<input type="checkbox"/>	Sample Office (US)	12/31/2018	No	2,672,024	2,672,024	478,123	2,193,901	2,193,901	No	N/A	N/A	N/A
<input type="checkbox"/>	Sample Office (US)	12/31/2019	No	2,371,275	2,371,275	427,303	1,943,971	1,943,971	No	N/A	N/A	N/A
<input type="checkbox"/>	Sample Library (US)	12/31/2017	No	863,435	863,435	236,658	626,777	626,777	No	N/A	N/A	N/A
<input type="checkbox"/>	Sample Library (US)	12/31/2018	No	794,909	794,909	172,279	622,630	622,630	No	N/A	N/A	N/A

**Figure 13 - Detailed view of the Data Table with "Emissions Baseline" tab displayed**

- Where applicable, the Calculator will automatically calculate GHG metrics based on the data you have imported for each building. These values will be shown immediately as your Emissions Baseline after you import your building data.
- In most cases, each building's "Location-Based" metrics will initially be the same as its "Market-Based" metrics. One exception is for buildings that have already accounted for the use of offsite green power within Portfolio Manager. In generating "Market-Based" metrics, the Calculator assigns zero emissions to offsite green power, so such buildings will see a difference in their initial "Indirect (Location-Based)" and "Indirect (Market-Based)" metrics.
- The metrics reflecting "Locality Factors" will display as "N/A" until and unless "Locality-Specified Factors" are applied (see below).
- Clicking the hyperlinked "Building Name" will open a window (or "drawer") that displays all the energy consumption data used to calculate GHG metrics. These include the data that have been imported from Portfolio Manager, as well as any custom emissions factors that you have applied to this building/year record.
  - The top section of this window (Figure 14) will reflect any custom and/or locality-specified emissions factors that you have assigned to your building (discussion of custom emissions factors below). If you have not assigned any custom or locality-specific factors for the building/year record, these fields will display as "N/A."

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Copy of Sample Office for BEC Testing Submit

Property ID: 17332073 Annual Period Ending Date: 12/31/2020 Clicking Submit does not affect any data in your Portfolio Manager account.

Percent of Electricity Use Receiving Custom Emissions Factor	N/A	Custom Emissions Factor for Electricity (kgCO <sub>2</sub> e/MBtu)	N/A
Percent of District Steam Use Receiving Custom Emissions Factor	N/A	Custom Emissions Factor for District Steam (kgCO <sub>2</sub> e/MBtu)	N/A
Percent of District Hot Water Use Receiving Custom Emissions Factor	N/A	Custom Emissions Factor for District Hot Water (kgCO <sub>2</sub> e/MBtu)	N/A
Percent of District Chilled Water Use Receiving Custom Emissions Factor	N/A	Custom Emissions Factor for District Chilled Water (kgCO <sub>2</sub> e/MBtu)	N/A
Locality-Specified Emissions Factors:	None		

Figure 14 - Individual building record details - custom factors

- The bottom section of this window (Figure 15) displays the data imported from Portfolio Manager or via manual import spreadsheet. These values are for reference only and cannot be edited.

Building Details (as imported from Portfolio Manager or entered manually)

Property Gross Floor Area - Calculated (Buildings) (ft <sup>2</sup> )	275,000	Site Energy (kBtu)	39,130,256
Site EUI (kBtu/ft <sup>2</sup> )	142.3	eGRID Subregion	(NYCW) NYCW (New York City)
Electricity - Grid Purchase and Generated from Onsite Renewable Systems (kBtu)	20,292,092	Electricity - Grid Purchase (kBtu)	19,473,212
Electricity Use - Generated from Onsite Renewable Systems and Used Onsite (kBtu)	818,880	Green Power Use - Onsite (kWh)	240,000
Green Power Use - Offsite (kWh)	552,289	Natural Gas (kBtu)	6,838,165
District Steam (kBtu)	11,999,999	District Hot Water Use (kBtu)	0
District Chilled Water Use (kBtu)	0	Fuel Oil #1 Use (kBtu)	0

Figure 15 - Individual building record details - data from Portfolio Manager

## ADJUSTING EMISSIONS FACTORS

The Calculator offers two approaches for specifying the use of different emissions factors than the eGRID subregional factors associated with the building's ZIP code.

### Adding Custom ("Market-Based") Emissions Factors

You can add custom factors for one or more of the "Indirect" fuel types (electricity, district steam, district hot water, district chilled water) consumed at a given building.

*Note: If a building record has already accounted for offsite green power consumption within Portfolio Manager, this will automatically be captured and factored into GHG emissions metrics*

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when the data are imported into the Calculator. In this case, the user should not reflect this through the application of a custom factor for electricity, as this would result in the “double counting” of the market-based GHG emissions benefit resulting from the use of offsite green power. If the offsite green power has not already been captured in Portfolio Manager, then it would be appropriate to capture this here as a “custom factor” for electricity.

To assign a custom factor for one or more indirect fuel type:

1. Select one or more building/year rows in the data table by checking the corresponding box(es). Clicking the box at the top of the chart will select all records (all buildings/years).
2. Click “Add Custom Factors.” In the pop-up box that displays (Figure 16), you can enter a custom factor for any or all of the following four fuel types: electricity, district steam, district hot water, district chilled water.

Figure 16 – “Add Custom Factors” interface

3. For each fuel type that requires a custom factor, enter the emissions factor (in kg CO<sub>2</sub>e/MBtu), as well as the percentage of total building consumption of that fuel type to which the custom factor should be applied.
4. Once you have entered all custom factors, click “Submit.” The pop-up window will close and you will return to the table.
5. Repeat this process as many times as needed if you have different custom factor data that you need to apply for different buildings or groups of buildings.
  - For any buildings for which you added custom factors, corresponding data for that year will be reflected in the summary graph.
  - The “Custom Factors Applied” column will change from “No” to “Yes” for any building/year record(s) for which Custom Factors have been applied.
  - Custom factors are applied to any building/year records that were checked when you first clicked “Add Custom Factors.” If you need to review and/or edit the custom factor that has been applied to a specific

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- building/year record, you can click on the Building Name and edit the relevant custom factor data fields at the top of the page (see Figure 14 above). Click “Submit” to apply any edits.
- If you want to reset the custom factors for specific building/year records, select one or more rows using the check boxes and click the “Reset” button. You can reset “Custom Factors Only,” “Locality-Specified Factors Only,” or “Both Factors.”

### Adding Locality-Specified Factors

The Calculator allows users to apply emissions factors that have been specified by a locality as part of a building performance standard, referred to as “locality-specified” factors.

1. Select one or more building/year rows in the data table by checking the corresponding box(es). Clicking the box at the top of the chart will select all records.
2. Click “Add Locality-Specified Factors” (Figure 17)

Building Name	Ending Date	Factors Applied	Based (kg CO <sub>2</sub> e)	Total (Market-Based) (kg CO <sub>2</sub> e)	Direct (kg CO <sub>2</sub> e)	Indirect (Location-Based) (kg CO <sub>2</sub> e)	Indirect (Market-Based) (kg CO <sub>2</sub> e)	Locality-Specified Factors Applied	Total (with Locality Factors) (kg CO <sub>2</sub> e)	Direct (with Locality Factors) (kg CO <sub>2</sub> e)	Indirect (with Locality Factors) (kg CO <sub>2</sub> e)
<input checked="" type="checkbox"/> Sample Office (US)	12/31/2017	No	2,725,892	2,725,892	318,476	2,407,416	2,407,416	No	N/A	N/A	N/A
<input checked="" type="checkbox"/> Sample Office (US)	12/31/2018	No	2,672,024	2,672,024	478,123	2,193,901	2,193,901	No	N/A	N/A	N/A
<input checked="" type="checkbox"/> Sample Office (US)	12/31/2019	No	2,371,275	2,371,275	427,303	1,943,971	1,943,971	No	N/A	N/A	N/A

Figure 17 - "Add Locality-Specified Factors" interface

3. Select the appropriate factors. Currently, the Calculator includes only the New York City Local Law 97 emissions factors, with plans to add others in the future as appropriate.
4. Repeat this process as many times as needed if you have buildings in different jurisdictions with specified emissions factors.
  - For any buildings for which you added locality-specified factors, corresponding data for that year will be reflected in the summary graph.
  - The “Locality-Specified Factors Applied” column will change from “No” to “Yes” for any building/year record(s) for which locality-specified factors have been applied.
  - Locality-specified factors will be applied to any building/year records that were checked when you first clicked “Add Locality-Specified Factors.” If you need to review and/or edit the locality-specified factor

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that has been applied to a specific building/year record you can click on the Building Name and edit the relevant custom factor data fields at the top of the page (see Figure 14 above). Click “Submit” to apply any edits.

- If you want to reset the locality-specified factors for specific building/year records, select one or more rows using the check boxes and click the “Reset” button. You can reset “Custom Factors Only,” “Locality-Specified Factors Only,” or “Both Factors.”

## EXPORTING BASELINE EMISSIONS RESULTS

You may export your data in spreadsheet format. Click the “Download” button in the upper right-hand corner of the “Emissions Baseline” data table. This will result in a spreadsheet (.xlsx) file being downloaded to your computer. This file will contain the following tabs:

- “*Emissions Baseline*” – contains all the calculated values that are in the “Emissions Baseline” data table of the Calculator at the time the “Download” button is clicked.
- “*Building Details*” – contains all the building-specific data that were imported into the Calculator from Portfolio Manager or entered via the manual spreadsheet data entry route.
- “*Custom – Locality Factors*” – contains all the custom and/or locality-specified GHG factors that were applied to each building/year record.
- “*Location-Based Factors*” – contains all of the GHG emissions factors that are applied to each fuel to calculate the location-based emissions for each building/year record.

Please note: the graphical displays cannot be directly exported.

## CALCULATING YOUR EMISSIONS FORECAST

Once you have reviewed/customized all data in the Calculator to calculate historical and current emissions for your building records, you can forecast emissions for one future year for each building.

In the Emissions Forecast tab, the table starts with the most recent year of data available for each building (Figure 18). For example, if “Building ABC” has building/year records in the Calculator for the annual periods ending December 2019 and December 2020, it will use the December 2020 data (as imported from Portfolio Manager) as a baseline for calculating the forecast.

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<input type="checkbox"/>	Building Name	Most Recent Annual Period Ending Date	Forecast Assumptions Applied	Total (Location-Based) (kg CO <sub>2</sub> e)	Total (Market-Based) (kg CO <sub>2</sub> e)	Direct (kg CO <sub>2</sub> e)	Indirect (Location-Based) (kg CO <sub>2</sub> e)	Indirect (Market-Based) (kg CO <sub>2</sub> e)	Total (with Locality Factors) (kg CO <sub>2</sub> e)	Direct (with Locality Factors) (kg CO <sub>2</sub> e)	Indirect (with Locality Factors) (kg CO <sub>2</sub> e)
<input type="checkbox"/>	Sample Office (US)	12/31/2019	No	2,371,275	2,371,275	427,303	1,943,971	1,943,971	N/A	N/A	N/A
<input type="checkbox"/>	Sample Library (US)	12/31/2019	No	883,019	883,019	173,581	709,438	709,438	N/A	N/A	N/A
<input type="checkbox"/>	Sample K-12 School (US)	12/31/2019	No	348,738	348,738	103,751	244,987	244,987	N/A	N/A	N/A
<input type="checkbox"/>	Copy of Sample Office for BEC Testing	12/31/2020	No	2,596,557	2,457,541	363,208	2,233,349	2,094,334	N/A	N/A	N/A

**Figure 18 - Detailed view of the Data Table with "Emissions Forecast" tab displayed**

You can apply the following assumptions for each building:

- Forecast Date (month and year)
- Anticipated % electricity (% of total site energy use that will come from electricity)
- Anticipated reduction in site energy use (%)
- Anticipated offsite green power use (% of total site electricity)
- Anticipated use of onsite-generated renewable energy (% of total site electricity)
- Anticipated emissions factor for grid electricity (kg CO<sub>2</sub>e/MBtu)

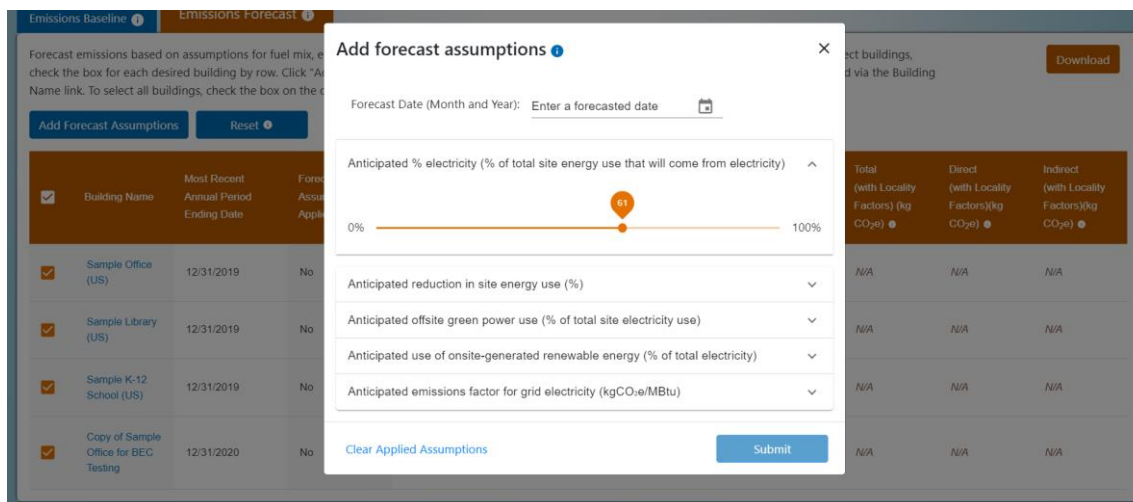
### Adding Forecast Assumptions

To apply forecast assumptions for one or more of your buildings:

1. Click the "Emissions Forecast" tab of the data table.
2. Select one or more building/year rows in the data table by checking the corresponding box(es). Clicking the box at the top of the chart will select all records.
3. Click "Add Forecast Assumptions."
4. Use the "Add forecast assumptions" window to apply assumptions (Figure 19).



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Forecast emissions based on assumptions for fuel mix, etc. check the box for each desired building by row. Click "Add Forecast Assumptions" to select all buildings, check the box on the left.

**Add forecast assumptions**

Forecast Date (Month and Year): Enter a forecasted date

Anticipated % electricity (% of total site energy use that will come from electricity)

Anticipated reduction in site energy use (%)

Anticipated offsite green power use (% of total site electricity use)

Anticipated use of onsite-generated renewable energy (% of total electricity)

Anticipated emissions factor for grid electricity (kgCO<sub>2</sub>e/MBtu)

[Clear Applied Assumptions](#)

Building Name	Most Recent Annual Period Ending Date	Forecast Assumptions Applied
<input checked="" type="checkbox"/> Sample Office (US)	12/31/2019	No
<input checked="" type="checkbox"/> Sample Library (US)	12/31/2019	No
<input checked="" type="checkbox"/> Sample K-12 School (US)	12/31/2019	No
<input checked="" type="checkbox"/> Copy of Sample Office for BEC Testing	12/31/2020	No

Total (with Locality Factors) (kg CO <sub>2</sub> e)	Direct (with Locality Factors) (kg CO <sub>2</sub> e)	Indirect (with Locality Factors) (kg CO <sub>2</sub> e)
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

**Figure 19 - "Add Forecast Assumptions" interface**

- Enter a forecast data (month and year) using the date picker.
  - For each of the five assumption types, click the downward-pointing carat to reveal the slider interface.
  - The default value for each assumption comes from the value in the building/year that is being used as the starting point for the forecast calculations.
  - Move the sliders to reflect the assumed values for the forecast year. Note that the "Anticipated emissions factor for grid electricity" is a user-entered value and does not have a slider.
  - Click "Submit." The pop-up window will close and you will be taken back to the Forecast table.
5. Repeat this process as many times as needed if you have different forecast assumptions that you need to apply for different buildings or groups of buildings.
- For any buildings for which you defined a forecast year, corresponding data for that year will appear in the "Emissions Per Building" graph above the data table.
  - In the "Emissions Forecast" data table, the column "Forecast Assumptions Applied" will change from "No" to "Yes" for any building record(s) for which Forecast Assumptions have been applied.
  - Forecast Assumptions will be applied to any building/year records that were checked when you first clicked "Add Forecast Assumptions." If you need to review and/or edit the custom factor that has been applied to a specific building/year record (i.e., a specific row in the data table), you can click on the Building Name and edit the relevant Forecast Assumption data fields (Figure 20). Click "Submit" to apply any edits.

## User Guide

### Sample Office for BEC Testing ⓘ

Submit

Property ID: 17254412

Forecast Date: 12/2040



Baseline fuel mix (% electricity)	74	Anticipated % electricity (% of total site energy use that will come from electricity)	90
Baseline Site EUI (kBtu/ft²)	95.7	Anticipated reduction in total site energy use (%)	20
Baseline offsite green power use (% of electricity)	10	Anticipated offsite green power use (% of total site electricity use)	15
Baseline onsite-generated renewable energy use (% of electricity)	0	Anticipated use of onsite-generated renewable energy (% of total site electricity use)	15
Baseline emissions factor for grid electricity (kgCO2e/MBtu)	73.8	Anticipated emissions factor for grid electricity (kgCO2e/MBtu)	40

*Figure 20 - Individual building record details - forecast assumptions*

- If you want to reset the Forecast Assumptions for specific building/year records, select one or more rows using the check boxes and click the “Reset” button.

## EXPORTING FORECAST EMISSIONS RESULTS

The Calculator allows you to export data in spreadsheet format. Click the “Download” button in the upper right-hand corner of the “Emissions Forecast” data table. This will result in a spreadsheet (.xlsx) file being downloaded to your computer. This file will contain the following tabs:

- “Emissions Forecast” – contains all the calculated values that are in the “Emissions Forecast” data table at the time the “Download” button is clicked.
- “Forecast Assumptions” – contains all the forecast assumptions that were applied to each building record. These will be the same values that are shown when you click on “Building Name” for each of the records in the “Emissions Forecast” data table.

Please note: the graphical displays cannot be directly exported.